

REMARKS

CLAIMS 1-12

Claims 1-12 were rejected under 35 U.S.C § 102(e) as being anticipated by Brown et al. (U.S. Patent Number 6,587,822, hereinafter Brown). With the current amendment, claim 1 has been amended so that it covers a speech recognition interface for a speech recognition engine where the interface comprises a compiler that produces a binary grammar from a markup language grammar comprising a plurality of markup language elements. Each element has a start tag and an end tag that delimits a portion of the grammar. A grammar engine provides the binary grammar to the speech recognition engine.

Brown does not show or suggest the invention of claim 1. In particular, Brown does not show or suggest a markup language grammar having a plurality of markup language elements that each have a start tag and an end tag.

In column 13, line 52 to column 14, line 50, Brown describes a grammar placed in an HTML page or a phone markup language (PML) page where the grammar is written in a grammar specification language (GSL) and is delimited between two <grammar> tags. Brown cites M.K. Brown and J.G. Wilpon,, "A Grammar Compiler for Connected Speech Recognition," IEEE Transactions on Signal Processing, Vol. 39, No. 1, pp. Jan. 17-28, 1991 for details on GSL. The cited publication is attached for the Examiner's reference.

As can be seen in the attached reference, GSL is not a markup language that uses tags. Instead, the language is simply a set of example word sequences that represent the grammar. Alternative word sequences are separated by a vertical bar and are grouped together by parenthesis. Each possible sentence is separated by a period. An example of the grammar is shown in FIG. 7a of the publication.

Because GSL does not use tags, the grammar in Brown does not have a plurality of markup language elements that each have a start tag and an end tag. Instead, the only tags used with reference to the grammar are the outermost <grammar> tags. However, these tags do not define a plurality of markup language elements that each have a start tag and an end tag that delimit a portion of the grammar.

Under claim 1, on the other hand, a plurality of markup language tags are used to define the structures of the grammar. By using multiple markup language elements that each have a start tag and an end tag, authoring grammars becomes more intuitive and reading grammars becomes much easier for people with limited experience working with grammars. It also allows references to rules, which the version of GSL mentioned in Brown does not.

Since Brown does not show a grammar written in a markup language consisting of plurality of markup language elements that each have a start tag and an end tag that delimit a portion of the grammar, Brown does not anticipate claim 1 or claims 2-12 which depend therefrom.

CLAIM 2

Claim 2 is additionally patentable over Brown. Under claim 2, the markup language grammar is written in an inextensible markup language.

In the Office Action, claim 2 was said to be shown in column 3, lines 40-52. Although this cited section mentions a hypertext markup language format and a phone markup language format, and further states that other suitable formats could be used, it does not explicitly disclose using an extensible markup language. As such, claim 2 is not anticipated by Brown.

CLAIMS 5 AND 6

Claims 5 and 6 are additionally patentable over Brown because they include limitations to a dictation tag that indicates to the speech recognition engine that it should switch to a dictation grammar during the recognition of at least one word. In the Office Action, column 14, lines 30-50 of Brown were cited as showing grammar switch tags comprising dictation tags that indicate that the speech recognition engine should switch to a dictation grammar. However, the cited section makes no mention of a dictation grammar or of switch tags that indicate that the speech recognizer should switch to a dictation grammar.

Applicants note that the grammar defined in column 14, lines 22-25 is a context-free grammar in which an extremely limited set of word sequences are defined that include only "get messages", "retrieve messages", and "call for messages." Any other words or any other sequences of words would not be recognized.

Since Brown does not show a set of dictation tags that indicate to the speech recognition engine to switch to a dictation grammar, it does not show or suggest the invention of claims 5 and 6.

CLAIMS 7 AND 8

Claims 7 and 8 are additionally patentable over Brown because they include a limitation wherein a switch grammar tag is a text buffer tag that indicates to the speech recognition engine to switch to a grammar stored in a text buffer. In the Office Action, column 13, lines 18-36 was asserted as showing a grammar stored in a text buffer. Applicants respectfully dispute this assertion.

The cited section makes no mention of a grammar stored in a text buffer. Instead, it refers to hash tables that provide a mapping from speech recognizer output text to computer commands

or URLs. Thus, the hash tables of the cited section are used after the speech recognition and as such do not form part of the speech recognition grammar. Further, the cited section makes no mention of tags in a grammar that indicate to a speech recognition engine that it should switch to a grammar stored in a text buffer. As such, claims 7 and 8 are additionally patentable over Brown.

CLAIMS 9-12

Claims 9-12 are also additionally patentable over Brown. Claims 9-12 include a limitation wherein the markup language grammar comprises a rule tag that delimits a grammar structure that may be referenced by a name attribute of the rule tag. Brown makes no mention of rule tags that delimit a grammar structure.

In the Office Action, column 13, line 25 to column 14, line 64 was cited as showing such rule tags/script tags to limit the grammar structure to be used by the speech recognition engine as sub-tag structures for word recognition. However, there is no mention of sub-tag structures in the cited section and there is no specific mention of rule tags that delimit a grammar structure or script tags that delimit script code in the cited section. As such, claims 9-12 are not shown or suggested in Brown.

CLAIMS 13, 14 AND 25-29

Claims 13, 14 and 25-29 were rejected under 35 U.S.C § 102(e) as being anticipated by Brown.

Independent claim 13 provides a computer-readable medium having computer-interpretable instructions that include an application providing a speech interface that expects to receive speech from the user as possible input, and a speech grammar associated with the application. The speech grammar is written in a markup language such that a start tag and an end tag having

a first tag name that delimit a set of elements of the grammar are located between a second start tag and a second end tag that have a second tag name.

Brown does not show or suggest the elements of claim 13. In particular, Brown does not show or suggest a speech grammar written in a markup language that has two sets of start tags and end tags with two different tag names where one set of start tags and end tags is located between the other set of start tags and end tags. As such, claims 13, 14 and 25-29 are not shown or suggested by Brown.

CLAIMS 25 AND 26

Claims 25 and 26 are additionally patentable over Brown. Under these claims, the speech grammar further comprises phrase tags that delimit at least one word in a grammar structure. Brown does not show or suggest phrase tags that delimit at least one word in a grammar structure. In the Office Action, column 13, lines 18-36 were cited as showing such phrase tags. However, the cited section makes no mention of any tags and in fact does not refer to the speech grammar at all but instead is referring to a mapping from speech recognizer output text to computer commands.

CLAIMS 27 AND 28

Claims 27 and 28 are additionally patentable over Brown because they include an additional limitation wherein the speech grammar has list tags that delimit a list of alternative grammar structures. Brown does not mention list tags that delimit a list of alternative grammar structures. In particular, column 13, lines 53-62 and column 14 of Brown never mentions a set of list tags that delimit a list of alternative grammar structures. Further, Brown never mentions list tags that comprise a semantic

property name attribute and a semantic property value attribute as found in claim 28.

Since Brown does not show or suggest list tags or list tags with semantic property name attributes, it does not show or suggest the invention of claims 27 and 28.

CLAIM 29

Claim 29 is additionally patentable over Brown because it includes a further limitation where the grammar comprises optional tags that delimit a grammar structure that can be but does not have to be recognized from a speech signal in order for a grammar structure that contains the optional tag to be recognized from the speech signal.

Brown does not show or suggest a grammar with optional tags that delimit a grammar structure that can be but does not have to be recognized from the speech signal. In particular, columns 13 and 14 of Brown make no mention of such optional tags. As such, claim 29 is further patentable over Brown.

CLAIMS 15-24

Claims 15-24 were rejected under 35 U.S.C § 103(a) as being unpatentable over Brown in view of Martin (U.S. Patent Number 5,642,519).

The combination of Brown and Martin does not show or suggest the inventions of claims 15-24 because the combination does not show or suggest the invention of claim 13. In particular, neither reference shows or suggests a speech grammar written in a markup language such that a start tag and an end tag having a first tag name are located between a second start tag and second end tag that have a second tag name. Since claims 15-24 depend from claim 13, and the combination of Brown and Martin fails to show or suggest the invention of claim 13, the

combination fails to show or suggest the invention of claims 15-24. As such, claims 15-24 are patentable over Brown and Martin.

CLAIM 15

Claims 15 is additionally patentable over the combination of Brown and Martin because it includes a further limitation where the speech grammar comprises rule tags that delimit a valid grammar structure for the grammar and that comprise a name attribute that is set equal to the name by which the grammar structure can be referenced.

Neither Brown nor Martin show or suggest rule tags that delimit a valid grammar and that comprise a name attribute. In the Office Action, column 18, lines 10-20 of Martin was cited as showing such rule tags. However, the cited section makes no reference to rule tags or a markup language. In fact, under Martin, the grammar is defined using the Bakus-Nauer Format (BNF), which does not use rule tags. Martin simply does not use a tag language to specify the grammar and as such can not show rule tags that delimit a valid grammar structure and that comprise a name attribute.

CLAIM 18

Claim 18 is additionally patentable over Brown and Martin because it includes a further limitation where the speech grammar comprises resource tags that delimit the identity of a resource that is to be provided to the code associated with a rule tag. Neither Martin nor Brown show or suggest resource tags that delimit the identity of a resource that is to be provided to code.

CLAIMS 22-24

Claims 22-24 are additionally patentable over Brown and Martin. Under claims 22-24, the speech grammar further comprises

grammar switch tags that indicate that a different grammar should be used during a part of the speech recognition.

Neither Brown nor Martin show or suggest switch tags that indicate that a different grammar should be used during a part of the speech recognition. In particular, column 24, lines 46-67 of Martin makes no mention of tags that can be used to indicate that a different grammar should be used during a part of the speech recognition. As such, claims 22-24 are additionally patentable over Brown and Martin.

CLAIMS 30-43

Claims 30-43 were rejected under 35 U.S.C § 103(e) as being anticipated by Brown.

Independent claim 30 is directed to a method of defining a grammar for speech recognition. The method includes delimiting a grammar structure in rule tags that conform to a markup language. The method further includes delimiting all of the rule tags for the grammar in grammar tags that conform to a markup language.

Brown does not show or suggest delimiting a grammar structure in rule tags that conform to a markup language and then delimiting all of the rule tags for the grammar in grammar tags that conform to a markup language. Although Brown does show a grammar defined within <grammar> tags, it does not show rule tags that conform to a markup language. Instead, the grammar defined within the grammar tags of Brown is defined using the grammar specification language and not a markup language. As such, claims 30-43 are not shown or suggested by Brown.

CLAIM 31

Claim 31 is additionally patentable over Brown. Under claim 31, delimiting a grammar structure in rule tags comprises setting a name attribute of the rule tags so that the grammar structure can be referred to by the name of the rule tags. Brown

does not show or suggest setting a name attribute in a rule tag. As such, claim 31 is additionally patentable over Brown.

CLAIMS 32 AND 33

Claims 32 and 33 are additionally patentable over Brown. Under these claims, delimiting the grammar structure in rule tags comprises setting a value for an interpreter attribute to indicate that code is to be invoked when the grammar structure delimited by the rule tags is recognized from a speech signal. Brown does not show or suggest setting a value for an interpreter attribute in rule tags to indicate that code is to be invoked. As such, claims 32 and 33 are further patentable over Brown.

CLAIMS 34-43

Claims 34-43 are additionally patentable over Brown because each of these claims includes a further limitation where at least one other set of tags, such as script tags, phrase tags, list tags, optional tags or switch tags are included within the rule tags. Brown does not show or suggest delimiting structures defined by rule tags with further tags. As such, these claims are additionally patentable over Brown.

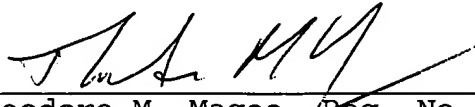
CONCLUSION

In light of the above remarks, claims 1-43 are patentable over Brown and Martin. Reconsideration and allowance of the claims is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

WESTMAN, CHAMPLIN & KELLY, P.A.

By: 
Theodore M. Magee, Reg. No. 39,758
Suite 1400 - International Centre
900 Second Avenue South
Minneapolis, Minnesota 55402-3319
Phone: (612) 334-3222 Fax: (612) 334-3312

TMM:sew